

On the native Nearctic species of the huntsman spider family Sparassidae Bertkau (Araneae)

Cristina A. Rheims: Laboratório de Artrópodes, Instituto Butantan, Avenida Vital Brazil, 1500, 05503-900, São Paulo, SP, Brazil. E-mail: cris.rheims@butantan.gov.br

Abstract. The native Nearctic species of the family Sparassidae are revised. Eight synonymies are proposed, reducing the number of species to five: *Olios schistus* Chamberlin 1919, *O. scepticus* Chamberlin 1924 and *O. positivus* Chamberlin 1924 with *O. peninsulans* Banks 1898; *O. albinus* Fox 1937 and *O. foxi* Roewer 1951 with *O. naturalisticus* Chamberlin 1924. *Olios concolor* Keyserling 1884 and *O. pragmaticus* Chamberlin 1924 are removed from the synonymy of *O. fasciculatus* Simon 1880 and synonymized with *O. giganteus* Keyserling 1884. All species currently included in the genus *Olios* Walckenaer 1837 are redescribed and illustrated, and new distribution records are presented. Comparisons between these species and the type species of the genus *Olios*, *Olios argelasius* (Walckenaer 1805), shows that none of them are congeneric and that true *Olios* does not occur in the Nearctic region. Nevertheless, the correct placement of these species in new genera will only be possible after a more thorough revision of the Nearctic and Neotropical fauna, especially that of Mexico and Central America.

Keywords: *Olios giganteus*, *Olios bibranchiatus*, *Olios peninsulans*, *Olios naturalisticus*, revision, synonymies, taxonomy

The Nearctic region comprises most of the North American continent, including Greenland and the northern highlands of Mexico (Udvardy 1975). To date, only thirteen Sparassidae species have been described from this region (eight from the USA and five from Northern Mexico), all assigned to the genus *Olios* Walckenaer 1837: *Olios franklinus* Walckenaer 1837, *O. concolor* Keyserling 1884, *O. giganteus* Keyserling 1884, *O. peninsulans* Banks 1898, *O. schistus* Chamberlin 1919, *O. naturalisticus* Chamberlin 1924, *O. positivus* Chamberlin 1924, *O. scepticus* Chamberlin 1924, *O. pragmaticus* Chamberlin 1924, *O. albinus* Fox 1937, *O. bibranchiatus* Fox 1937, *O. mojavenis* Fox 1937 and *O. foxi* Roewer 1951 (Platnick 2010).

Olios franklinus, the first spassid to be described from the Nearctic region, was proposed by Walckenaer (1837) from the USA. Nevertheless, the female type was never located and the identity of the species is considered doubtful.

Olios fasciculatus was described by Simon (1880), based on a male and female from Mariposa County, California, USA. Roth (1988) examined the type series and, based on Simon's description, designated a male lectotype. Nevertheless, no females fitting the original description were found amongst those in the type series suggesting that these were added posteriorly and were not conspecific with the described male. Also, since no other *Olios* specimens were found in the collections from California, Roth raised the possibility that the vial was actually mislabeled. Jäger & Kunz (2005) confirmed Roth's suspicions and matched the lectotype to specimens from Tanzania. Thus, the species is not native and most likely does not occur in the Nearctic region.

Keyserling (1884) described *O. giganteus*, *O. concolor* and *O. abnormis* from New Mexico, USA. The name *abnormis* was preoccupied by *Sparassus abnormis* Blackwall 1866 and the species was given the new name *Olios foxi* by Roewer (1951). *Olios concolor* and *O. giganteus* were synonymized with *O. fasciculatus* by Banks (1893) and the latter removed from this synonymy by Roth (1988).

Olios peninsulans was described by Banks (1898), based on a male and a female from San Jose del Cabo, Baja California, Mexico. Chamberlin (1919) described *O. schistus* from Claremont, Los Angeles, USA, and a few years later (1924),

O. naturalisticus, *O. positivus*, *O. scepticus* and *O. pragmaticus* from the Gulf of California (Tiburón Island, San Francisco Island, Cerralba Island, and San Lorenzo Island, respectively), Mexico. *Olios pragmaticus* was synonymized with *O. fasciculatus* by Fox (1937) who revised the Nearctic fauna of Sparassidae and described three new species: *Olios albinus*, from Phoenix, Arizona, *O. bibranchiatus*, from Madera Canyon, Arizona, and *O. mohavensis*, from the Mojave desert, California. He also recorded the presence of two non native spassid species: *Heteropoda venatoria* (Linnaeus 1767), a widely distributed pantropical species, and *Pseudosparianthis cubana* Banks 1909, originally described from Cuba, in Southwestern USA and Florida, respectively. *Olios mohavensis* was recently transferred to *Macrinus* by Rheims (2010).

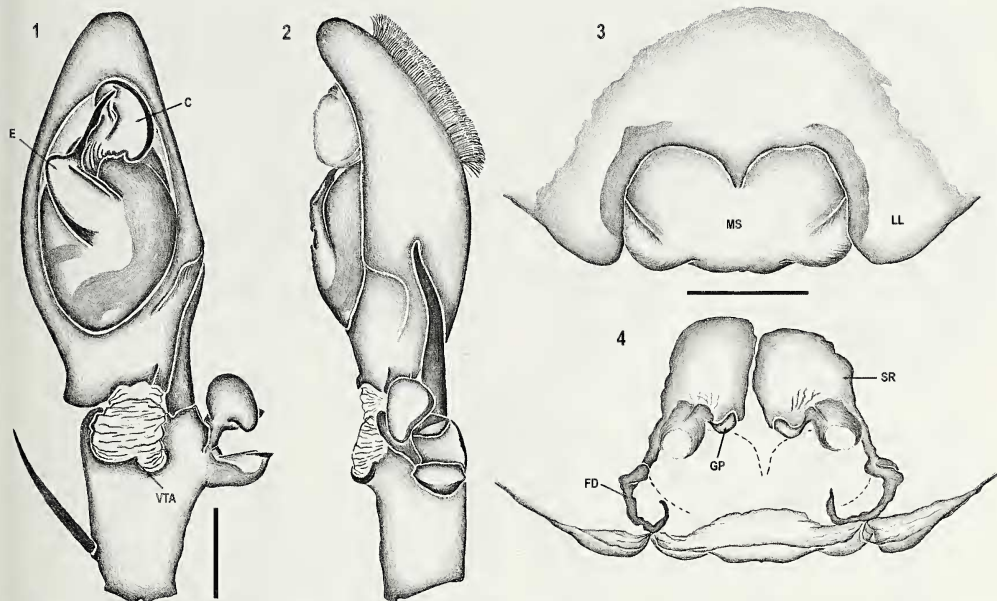
In this paper I present the taxonomic revision of the native Nearctic fauna of Sparassidae. All species, currently included in the genus *Olios*, are redescribed and illustrated. Comparisons between these species and the type species of *Olios*, *Olios argelasius* (Walckenaer 1805), show that none of them are congeneric and that true *Olios* does not occur in the Nearctic region. Nevertheless, the correct placement of these species in new genera will only be possible after a more thorough revision of the Nearctic and Neotropical fauna, especially that of Mexico and Central America.

METHODS

The examined material is deposited in the following institutions (abbreviation and curator in parentheses): American Museum of Natural History, New York (AMNH, N.I. Platnick); California Academy of Sciences, San Francisco (CAS, C.E. Griswold); Museum of Comparative Zoology, Cambridge, Massachusetts (MCZ, G. Giribet); National Museum of Natural History, Smithsonian Institution, Washington DC (USNM, J.A. Coddington).

Morphological observations and illustrations were made using a Leica MZ12 stereomicroscope with a camera lucida. Measurements were taken with a micrometric ocular and are given in millimeters. Female genitalia were observed in dove oil after dissection.

The format of descriptions follows that used in Rheims (2007). Spine notation follows that of Petrunkevitch (1925).



Figs. 1-4.—*Olios bibranchiatus*. 1. Male, left palp, ventral view; 2. Same, retrolateral view; 3. Female, epigynum, ventral view; 4. Same, vulva, dorsal view (C = conductor, E = embolus, FD = fertilization duct, GP = glandular projection, LL = lateral lobes, MS = median septum, SR = seminal receptacle, VTA = ventral tibial apophysis). Scale lines: 1mm.

Leg measurements are listed as: total length (femur, patella, tibia, metatarsus, tarsus); eye diameters as: AME, ALE, PME, PLE; interdistances as: AME-AME, AME-ALE, PME-PME, PME-PLA, AME-PME, ALE-PLA. Abbreviations used throughout the text: ALE, anterior lateral eyes; AME, anterior median eyes; d, dorsal; p, prolateral; PLE, posterior lateral eyes; PME, posterior median eyes; r, retrolateral; RTA, retrolateral tibial apophysis; v, ventral; VTA, ventral tibial apophysis; mi, miles.

TAXONOMY

Olios bibranchiatus Fox 1937

Figs. 1-4, 17

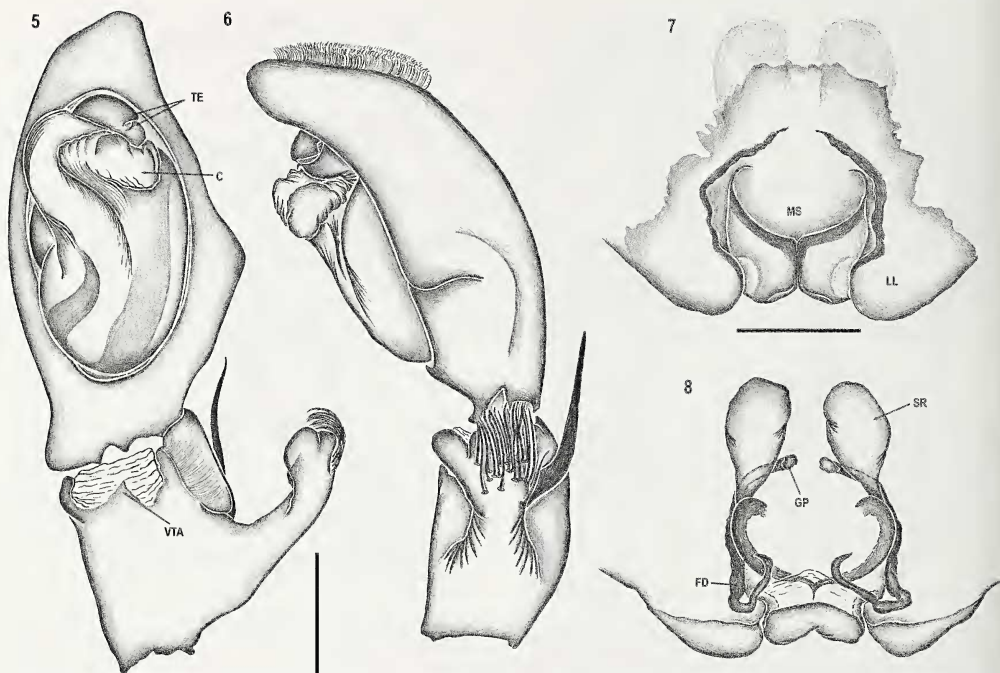
Olios bibranchiatus Fox 1937:470, figs. 6, 8 (Male holotype from Madera Canyon, Santa Rita Mountains, Pima County, Arizona, USA, May 1898, E.A. Schwartz leg. and female allotype from Santa Fé, 35°41'N, 105°56'W, New Mexico, USA, deposited in USNM, examined; two male and three female paratypes from Oro Blanco Mountains, 12 mi from Nogales, 31°36'N, 110°59'W, Arizona, USA, July 1937, deposited in AMNH, examined). Platnick 2010.

Additional material examined.—USA: *New Mexico*: 1 female, Santa Fé (35°41'N, 105°56'W) (USNM). *Arizona*: 1 male, Sedona (34°52'N, 111°45'W) (AMNH); 2 males, Yarnell (34°13'N, 112°44'W) (AMNH); 1 male, Santa Catalina

Mountains, Peppersauce Cave Canyon (32°26'N, 110°47'W) (AMNH); 1 male, Pima County, Tucson (32°13'N, 110°55'W) (CAS); 1 male, Cochise County, Paradise Chiricahua Mountains (31°55'N, 109°22'W) (CAS); 1 male, Portal (31°54'N, 109°08'W) (AMNH); 1 male, Santa Rita Mountains (31°43'N, 110°52'W) (USNM); 1 male, same locality (AMNH); 1 male, Douglas (31°20'N, 109°32'W) (AMNH). MEXICO: *Sonora*: 1 female, 6 mi W Bahía San Carlos, "Los Algodones" (CAS); 1 male, 10 mi W Alamos (AMNH); 1 male, Hermosillo (29°04'N, 110°58'W) (AMNH); 1 male, Guaymas (27°59'N, 110°54'W) (AMNH). *Durango*: 1 male, vicinity of Durango (24°01'N, 104°40'W) (CAS). *Nayarit*: male, 1 female and 1 juvenile, Jesus Maria (22°15'N, 104°31'W) (AMNH); 2 males, San Blas, Mantauchen Beach (21°32'N, 105°17'W) (AMNH); 1 male and 2 females, 7 mi E San Blas (CAS); 1 female, Tepic (21°30'N, 104°53'W) (AMNH). *Jalisco*: 1 male and 3 females, Jalisco (21°26'N, 104°54'W) (AMNH); 1 male, Compostela (21°14'N, 104°53'W) (AMNH); 1 male, Yalapa (20°28'N, 105°25'W) (AMNH).

Distribution.—USA to western Mexico.

Diagnosis.—*Olios bibranchiatus* Fox 1937 is distinguished from the remaining Nearctic species by the RTA, with a horizontally bifid ventral branch (Figs. 1, 2) and by the embolus with a wide base and slender tip in the male palp (Fig. 1); by the subrectangular median septum in the female epigynum being wider than long (Fig. 3); and by the short glandular projection in the female vulva (Fig. 4).



Figures 5-8.—*Olios peninsulanus*. 5. Male, left palp, ventral view; 6. Same, retrolateral view; 7. Female, epigynum, ventral view; 8. Same, vulva, dorsal view (C = conductor; FD = fertilization duct; GP = glandular projection; LL = lateral lobes; MS = median septum; SR = seminal receptacle; TE = tip of embolus; VTA = ventral tibial apophysis). Scale lines: 1mm.

Redescription.—*Holotype male, USNM*: Prosoma, legs and pedipalps brownish orange. Sternum brownish orange with brown margins. Labium brown, distally yellow. Endites brownish orange, distally lighter. Opisthosoma brownish gray. Total length 21.2. Prosoma: 10.2 long, 8.0 wide. Opisthosoma: 10.0 long, 6.8 wide. Chelicerae with two promarginal and four retromarginal teeth, the basal one smaller. Internal margin at fang base with 6 strong setae. Eye diameters: 0.52, 0.48, 0.36, 0.44; interdistances: 0.38, 0.16, 0.60, 0.70, 0.36, 0.38. Leg measurements (2143): I: 40.0 (10.8, 4.0, 10.6, 11.0, 3.6); II: 49.6 (13.6, 5.2, 13.0, 14.0, 3.8); III: 33.4 (10.0, 3.8, 8.2, 8.6, 2.8); IV: 40.0 (12.0, 3.8, 10.2, 11.0, 3.0). Trochanter notched. Metatarsi I-IV with dorsal trilobate membrane with median hook as large as lateral projections. Spination: femora I-III: p1-1-1; d0-1-1; r1-1-1; femur IV: p1-1-1; d0-1-1; r0-0-1; tibiae I-IV: p1-0-1; d0-0-1; r1-0-1; v2-2-0; metatarsi I-III: p1-1-0; r1-1-0; v2-2-0; metatarsus IV: p1-1-1; r1-1-1; v2-2-0. Palp: tibia half cymbium length with small VTA and one prolateral spine; RTA distal with long, spine-like dorsal branch and horizontally bifid branch; cymbium slightly elongate with dorsal scopula and large rounded alveolus; tegulum ring-like with massive conductor, originating from the center; embolus very wide at base and distally slender (Figs. 1, 2).

Allotype female, USNM: Coloration pattern as in male. Total length 22.4. Prosoma: 10.2 long, 9.0 wide. Opisthosoma: 13.4 long, 9.6 wide. Chelicerae as in male. Eye diameters: 0.60, 0.50, 0.38, 0.44; interdistances: 0.50, 0.26, 0.92, 0.90, 0.56, 0.60. Leg measurements (2143): I: 38.4 (11.0, 5.0, 10.0, 9.4, 3.0); II: 42.0 (12.4, 5.4, 10.4, 10.8, 3.0); III: 30.6 (8.8, 4.4, 7.2, 7.8, 2.4); IV: 35.0 (10.2, 4.4, 8.6, 9.2, 2.6). Trochanter as in male. Trilobate membrane as in male. Spination as in male except tibiae I-IV: d0. Epigynum: lateral borders simple, with no projections; medium septum wider than long with pair of antero-lateral copulatory openings (Fig. 3). Vulva: copulation duct short, opening to large globular, membranous seminal receptacle (= spermatheca); glandular projection short and small; fertilization ducts very long and slender (Fig. 4).

Variation.—Males ($n = 5$): total length 9.5-13.6; prosoma 4.6-6.1; femur I 6.6-9.5. Females ($n = 4$): total length 12.3-18.0; prosoma 4.3-6.0; femur I 5.7-8.0.

Olios peninsulanus Banks 1898

Figs. 5-8, 18

Olios peninsulanus Banks 1898:266, plate 16, fig. 19 (One male and two female syntypes from San Jose del Cabo, 23°03'N, 109°41'W, Baja California, Mexico, N. Banks leg., deposited in MCZ 22591, examined). Platnick 2010.

Olios schistus Chamberlin 1919:10, plate 4, figs. 2, 3 (Male holotype from Claremont, 34°05'N, 117°43'W, Los Angeles County, California, USA, April 1913, R.V. Chamberlin leg., deposited in MCZ 354, examined; one female paratype from the same locality as holotype, W.A. Hilton leg., deposited in MCZ 355, examined). Fox 1937:469, figs. 7, 10; Platnick 2010. **New synonymy**

Olios scepticus Chamberlin 1924:658, fig. 120 (Female holotype from Ceralba Island, 24°23'N, 109°45'W, Gulf of California, Mexico, 6 June 1921, J.C. Chamberlin leg., deposited in CAS 1440, examined; female paratype from Ceralba Island, 24°23'N, 109°45'W, Gulf of California, Mexico, 6 June 1921, J.C. Chamberlin leg., deposited in MCZ 1209, examined). Platnick 2010. **New synonymy**

Olios positivus Chamberlin 1924:657, fig. 99 (Female holotype from San Francisco Island, Gulf of California, Mexico, 30 May 1921, J.C. Chamberlin leg., deposited in CAS 1439, examined; immature female paratype from San Francisco Island, Gulf of California, Mexico, 30 May 1921, J.C. Chamberlin leg., deposited in MCZ 22727, examined). Platnick 2010. **New synonymy**

Additional material examined.—USA: *California*: 1 female, Los Angeles County, Arcadia, 34°08'N, 118°02'W (AMNH); 3 males and 2 females, Claremont (34°05'N, 117°43'W) (AMNH); 1 male, same locality (USNM); 1 female, Los Angeles (34°03'N, 118°14'W) (USNM); 1 male, same locality (AMNH); 1 male and 1 juvenile, 3 miles W Santa Monica (AMNH); 2 males and 1 juvenile, Topongca Can (34°N; 118°W) (AMNH); 1 female, La Habra (33°55'N, 117°56'W) (CAS); 1 female, San Jacinto (33°47'N, 116°57'W) (USNM); 1 male, Catalina Island (33°22'N, 118°26'W) (CAS); 2 males, La Cresta (32°48'N, 116°51'W) (AMNH); 5 males and 1 female, San Diego (32°42'N, 117°09'W) (USNM); 1 male, same locality (AMNH); 2 males, San Diego, Lakeside (USNM). *MEXICO: Baja California*: 1 male (USNM); 1 female, El Tarte (USNM); 1 female and 1 juvenile, same locality (CAS); 2 males, Río San Salvador, at Highway 3, Malise flowing Creek (31°52'24"N, 116°05'27"W) (CAS); 1 male, St. Martin Island (30°29'N, 116°06'W) (CAS); 1 male and 1 female, El Rosario (30°03'N, 115°43'W) (AMNH); 1 male, Penjamo (29°58'N, 115°07'W) (CAS); 1 male, Santa Inez (29°41'N, 114°42'W) (CAS); 1 male, San Jose, Meling Ranch (29°32'N, 114°42'W) (AMNH); 1 female, Playa Lobos (CAS); 2 males, Isla Angel de la Guarda, Puerto Refugio, on north end (29°16'N, 113°24'W) (CAS); 1 female, 19 mi W Santa Teresa (28°04'N, 113°07'W) (CAS). *Baja California Sur*: 2 females, 1.7 km W Guerrero Negro, on road to Estero de San Jose (CAS); 1 male and 1 juvenile, Todos Santos (29°30'N, 114°45'W) (AMNH); 3 males, 28 mi SSE Todos Santos (CAS); 1 female, Punta Palmilla (CAS); 1 female, 38 km N Guerrero Negro, turnoff at km 90 on Mexico Highway 1 (CAS); 1 male, 6 km SE San Antonio (CAS); 1 male, Loreto (26°01'N, 111°20'W) (AMNH); 1 female, El Mesguita (25°45'N, 100°15'W) (CAS); 1 female, 12 km W Santiago, Rancho Mata Gorda (CAS); 1 male, La Paz (24°10'N, 110°17'W) (CAS); 1 female, same locality (AMNH); 1 female and 2 juveniles, E La Paz (CAS); 1 male, E Sombrero Trailer Park (CAS); 1 female and 1 juvenile, E Valle Perdido (CAS); 1 female, 0.5 mi N Miraflores (CAS); 1 female, 7 mi N Santa Anita, on Highway Sur (CAS); 1 male and 2 females, San Jose

del Cabo (23°03'N, 109°40'W) (USNM); 1 female, Cabo San Lucas (22°52'N, 109°54'W) (CAS). *Nayarit*: 1 female, 7.3 mi E San Blas (CAS).

Distribution.—Southwestern USA and Baja California in Mexico.

Diagnosis.—*Olios pensulannus* Banks 1898 is distinguished from the remaining Nearctic species by the RTA with a long ventral branch with strong hairs subdistally (Figs. 5, 6) in the male palp, by the median septum as long as wide with a pair of posterior lobes in the female epigynum (Fig. 7) and by the very long glandular projections in the female vulva (Fig. 8).

Redescription.—*Male (USNM)*: Prosoma orange with small black spots at the base of setae on cephalic region. Chelicerae, legs and pedipalps pale orange. Sternum orange with darker margins. Labium and endites orange, distally pale orange. Opisthosoma brownish yellow. Dorsally mottled with small brown spots and with 3–4 medial chevrons on posterior half. Total length 13.0. Prosoma: 5.4 long, 6.0 wide. Opisthosoma: 7.6 long, 5.6 wide. Chelicerae with two promarginal and three retromarginal teeth, the most basal one smallest. Inner margin at base of fang with four strong setae. Eye diameters: 0.42, 0.38, 0.26, 0.34; interdistances: 0.36, 0.14, 0.56, 0.56, 0.34, 0.30. Leg measurements (2143): I: 30.2 (8.4, 3.4, 8.0, 8.0, 2.4); II: 34.0 (9.6, 3.6, 9.2, 8.8, 2.8); III: 23.8 (7.4, 3.0, 5.8, 5.6, 2.0); IV: 27.2 (7.6, 3.0, 7.0, 7.6, 2.0). Trochanter notched. Metatarsi I–IV with dorsal trilobate membrane with median hook as large as lateral projections. Spination: femora I–III: p1-1-1; d0-1-1; r1-1-1; femur IV: p1-1-1; d0-1-1; r0-1-1; tibia I: p1-0-1; r1-0-1; v2-2-0; tibiae II–IV: p1-0-1; d0-0-1; r1-0-1; v2-2-0; metatarsi I–III: p1-1-0; r1-1-0; v2-2-0; metatarsus IV: p1-1-1; r1-1-1; v2-2-0. Palp: tibia short, shorter than half cymbium length with small VTA and no spines (Fig. 5); RTA with long, spine-like dorsal branch and long ventral branch with many strong hairs subdistally (Figs. 5, 6); cymbium slightly elongate with dorsal scopula, slightly pronounced retrolateral bulge and large rounded alveolus; tegulum ring-like with massive conductor originating at center; embolus wide with bifid tip (Fig. 5).

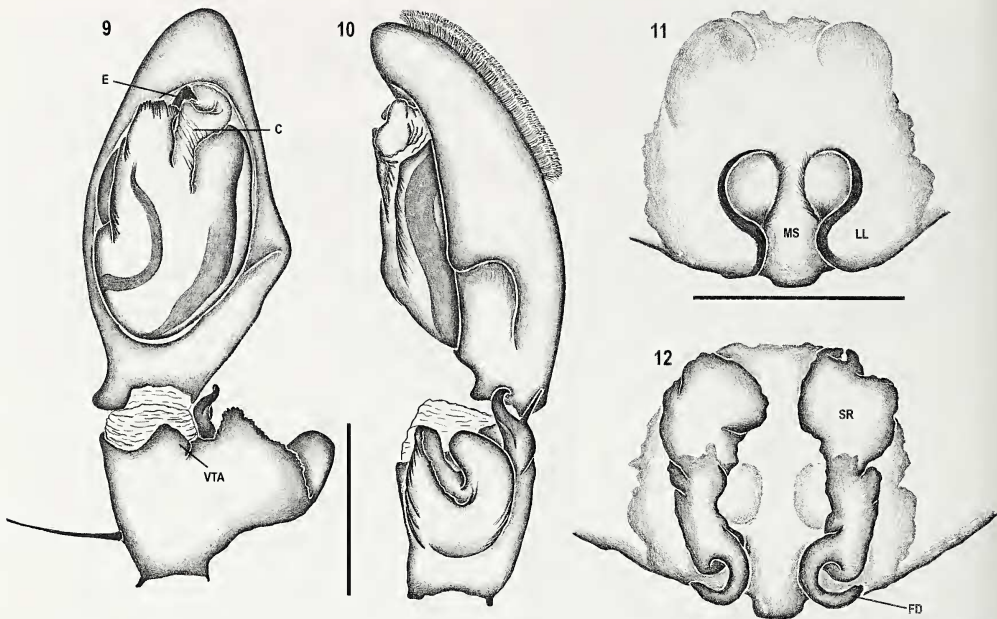
Female (USNM): Coloration pattern as in male, slightly darker. Total length 20.0. Prosoma: 7.6 long, 7.6 wide. Opisthosoma: 11.2 long, 9.0 wide. Chelicerae with two promarginal and four retromarginal teeth, the basal one smallest. Eye diameters: 0.50, 0.44, 0.34, 0.34; interdistances: 0.50, 0.24, 0.80, 0.82, 0.48, 0.44. Leg measurements (2143): I: 29.4 (8.2, 4.2, 6.8, 7.6, 2.6); II: 32.2 (9.2, 4.2, 8.0, 8.0, 2.8); III: 23.2 (7.2, 3.4, 5.2, 5.4, 2.0); IV: 26.0 (8.0, 3.4, 6.0, 6.4, 2.2). Trochanter as in male. Trilobate membrane as in male. Spination as in male, except tibiae II–IV: d0. Epigynum: lateral lobes simple, without projections; median septum as long as wide with two posterior lobes (Fig. 7). Vulva: membranous seminal receptacle oval; glandular projections slender, almost as long as seminal receptacle; fertilization ducts long (Fig. 8).

Variation.—Males ($n = 10$): total length 6.2–8.7; prosoma 2.5–4.2; femur I 3.7–5.7. Females ($n = 10$): total length 7.8–11.3; prosoma 2.9–4.6; femur I 3.1–5.4.

Olios naturalisticus Chamberlin 1924

Figs. 9–12, 19

Olios abnormis Keyserling 1884:679, plate 21, fig. 27 (Male holotype from PW, New Mexico, USA, deposited in



Figures 9–12.—*Olios naturalisticus* Chamberlin. 9. Male, left palp, ventral view; 10. Same, vulva, dorsal view (C = conductor; E = embolus; FD = fertilization duct; LL = lateral lobes; MS = median septum; SR = seminal receptacle; VTA = ventral tibial apophysis). Scale lines: 1mm.

USNM, examined). Preoccupied by Blackwall 1866, sub *Sparassus*.

Olios naturalisticus Chamberlin 1924:659, fig. 101 (Female holotype from southeastern corner of Tiburon Island, 29°00'N, 112°25'W, Baja California, Mexico, 4 July 1921, J.C. Chamberlin leg., deposited in CAS 1441, examined; one immature female paratype from Patos Island, 29°16'N, 112°27'W, Baja California, Mexico, 23 April 1921, J.C. Chamberlin leg., deposited in MCZ 1210, examined). Platnick 2010.

Olios albimus Fox 1937:473, fig. 3 (Female holotype from Phoenix, 33°26'N, 112°04'W, Arizona, USA, May 1935, R.V. Chamberlin, deposited in USNM). Platnick 2010. **New synonymy**

Olios foxi Roewer 1951 (replacement name for *O. abnormis* Keyserling 1884, preoccupied by Blackwall 1866, sub *Sparassus*). Platnick 2010. **New synonymy**

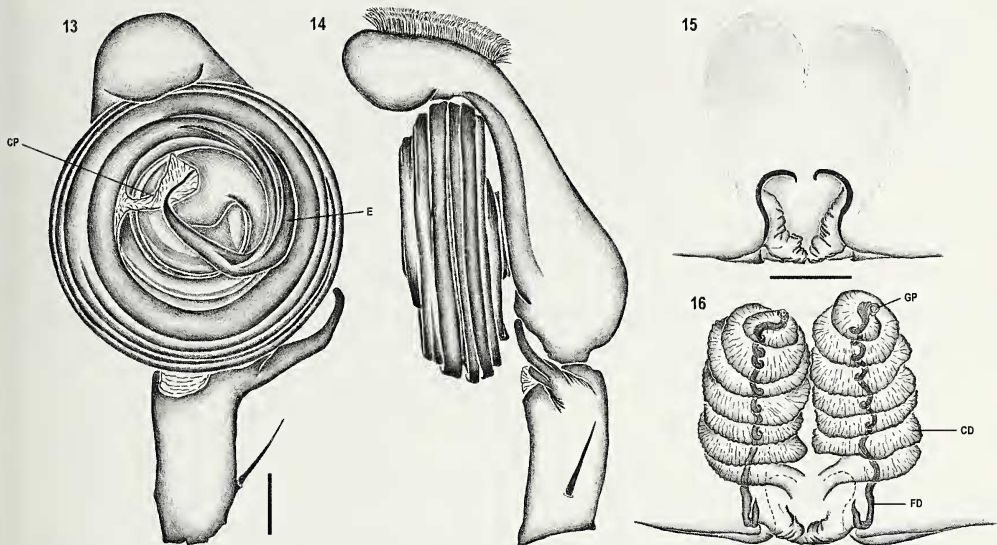
Additional material examined.—USA: *Arizona*: 1 male, Mohave County, 15 mi W Davis Camp (CAS); 1 female, Phoenix (33°26'N, 112°04'W) (AMNH); 1 female, Yuma County, Mitty Lake (32°49'N, 114°29'W) (AMNH); 1 female, Yuma County, Morellos Dam (32°43'N, 114°37'W) (AMNH); 1 male and 1 female, Yuma (32°43'N, 114°37'W) (CAS); 2 males and 4 females, same locality (AMNH); 1 male, Babaquivary Mountains, Kito Peak Ringon (32°24'N, 111°57'W) (AMNH); 1 male, Babaquivary Mountains,

Forestry Cabin (AMNH); 1 female, Organ Pipe (32°16'N, 112°44'W) (CAS); 2 males, Pima County, Tucson (32°13'N, 110°55'W) (AMNH); 19 males, Cochise County, Portal (31°54'N, 109°08'W) (AMNH). *California*: 1 male, Los Angeles County, Los Angeles (34°03'N, 118°14'W) (USNM); 2 females, Riverside County, Indian Wells (33°43'N, 116°18'W) (AMNH); 1 male, Blythe (33°36'N, 114°35'W) (CAS). MEXICO: *Baja California*: 1 female, San Felipe (31°01'N, 114°50'W) (AMNH). *Sonora*: 1 female, 1 mi W Bahía San Carlos (CAS); 1 male, same locality (AMNH); 1 female, Desemboque (29°30'N, 112°22'W) (AMNH); 2 males, four females and 2 juveniles, Guaymas (27°59'N, 110°54'W) (AMNH); 1 female, 17 mi S Navojoa (CAS); 1 male, 15–20 km E Baviacora (AMNH).

Distribution.—Southwestern USA to Northwestern Mexico.

Diagnosis.—*Olios naturalisticus* Chamberlin is distinguished from the remaining Nearctic species by the RTA with massive, transversally bifid ventral branch and short, distally bifid dorsal branch (Figs. 9, 10) in the male palp; by the female epigynum with median septum with pair of large anterior atria (Fig. 11); and by the female vulva with thick and shorter fertilization ducts (Fig. 12).

Redescription.—*Male (USNM)*: Prosoma pale orange with black stripes extending backwards from PLE and black U-shaped stripe at base of cephalic region. Chelicerae pale orange with few black spots at the base of setae. Pedipalps



Figures 13–16.—*Olios giganteus* Keyserling. 13. Male, left palp, ventral view; 14. Same, retrolateral view; 15. Female, epigynum, ventral view; 16. Same, vulva, dorsal view (CD = copulatory duct; CP = conductor-like projection; E = embolus; FD = fertilization duct; GP = glandular projection). Scale lines: 1mm.

pale orange. Legs pale orange mottled with few brown spots. Sternum yellow with pale orange margins, mottled with few black spots. Labium and endites pale orange, distally cream colored. Opisthosoma brownish gray. Dorsally with median chevrons and mottled with brown spots anteriorly. Ventrally mottled with brown spots. Total length 14.0. Prosoma: 6.0 long, 6.4 wide. Opisthosoma: 7.6 long, 5.4 wide. Chelicerae with two promarginal and four retromarginal teeth, the most basal smaller. Inner margin at base of fang with four strong setae. Eye diameters: 0.46, 0.34, 0.30, 0.36; interdistances: 0.36, 0.18, 0.64, 0.62, 0.50, 0.40. Leg measurements (2143): I: 31.0 (8.8, 3.2, 8.2, 8.2, 2.6); II: 33.6 (9.6, 3.8, 9.2, 8.6, 2.4); III: 24.00 (7.4, 3.0, 5.8, 5.8, 2.0); IV: 28.2 (8.4, 3.0, 7.2, 7.4, 2.2). Trochanter notched. Metatarsi I–IV with dorsal trilobate membrane with median hook as large as lateral projections. Spination: femora I–III: p1-1-1; d0-1-1; r1-1-1; femur IV: p1-1-1; d0-1-1; r0-1-1; tibiae I–IV: p1-0-1; d0-0-1; r1-0-1; v2-2-0; metatarsi I–III: p1-1-0; r1-1-0; v2-2-0; metatarsus IV: p1-1-1; r1-1-1; v2-2-0. Palp: tibia short, shorter than half cymbium length, with small VTA and one prolateral spine (Fig. 9); RTA distal, with short and bifid dorsal branch and massive, transversally bifid ventral branch (Fig. 10); cymbium slightly elongate with dorsal scopulae and large, rounded alveolus; tegulum ring-like with massive conductor, originating at center; embolus with slightly elongate, widened base and short, spine-like tip (Fig. 9).

Female (AMNH): Coloration pattern as in male. Total length 10.0. Prosoma: 3.3 long, 3.9 wide. Opisthosoma: 6.8 long, 5.5 wide. Chelicerae as in male. Eye diameters: 0.30, 0.22, 0.18, 0.22; interdistances: 0.20, 0.10, 0.42, 0.38, 0.22,

0.16. Trochanter notched. Metatarsi I–IV with dorsal trilobate membrane with median hook as large as lateral projections. Leg measurements (2143): I: 14.4 (4.0, 1.9, 3.6, 3.7, 1.2); II: 15.6 (4.6, 2.0, 3.9, 3.9, 1.2); III: 11.1 (3.4, 1.5, 2.7, 2.5, 1.0); IV: 13.5 (4.0, 1.7, 3.2, 3.5, 1.1). Spination as in male except tibiae I–IV: d0. Epigynum: lateral borders simple, without projections; median septum anteriorly narrow with two large lateral atria, bearing copulatory openings (Fig. 11). Vulva: copulation ducts inconspicuous; membranous seminal receptacle large and irregular; glandular projection very small and ventral, not seen in dorsal view; fertilization ducts short and thick (Fig. 12).

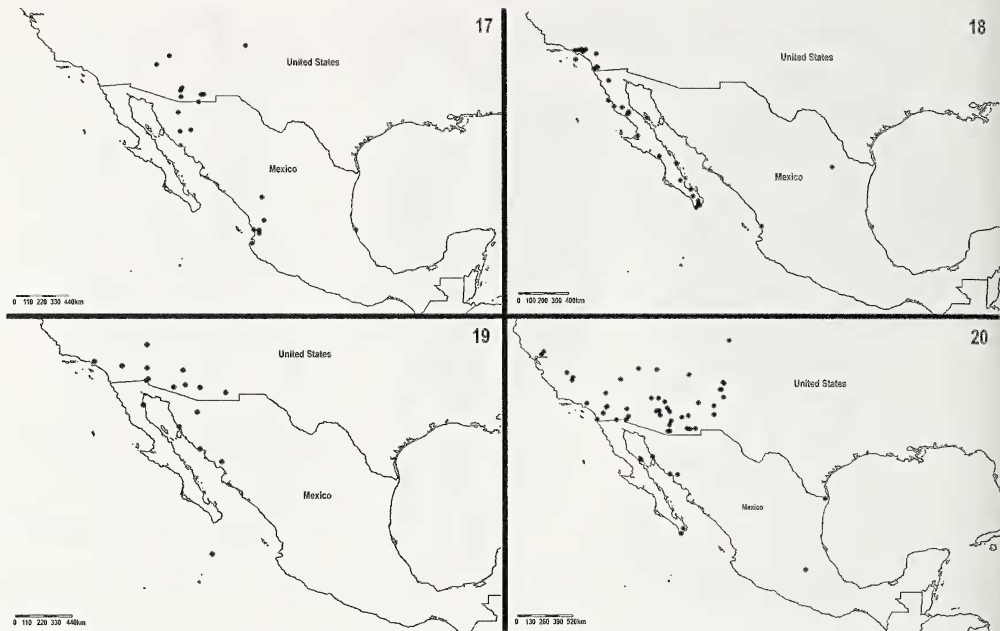
Variation.—Males ($n = 8$): total length 7.4–9.0; prosoma 3.5–4.0; femur I 4.8–5.4. Females ($n = 5$): total length 8.2–9.1; prosoma 3.4–4.2; femur I 4.0–5.2.

Olios giganteus Keyserling 1884
Figs. 13–16, 20

Olios giganteus Keyserling 1884:681, plate 21, fig. 28 (Female holotype from Punta del Agua, 34°36'N, 106°16'W, New Mexico, USA, deposited in USNM, examined). Roth 1988:36 (removed from syn. of *O. fasciculatus*). Platnick 2010.

Olios concolor Keyserling 1884:682, plate 21, fig. 29 (Male holotype from Punta del Agua, 34°36'N, 106°16'W, New Mexico, USA, deposited in USNM, examined). Platnick 2010. **New synonymy**

Olios pragmaticus Chamberlin 1924:659, fig. 102 (Female holotype from South San Lorenzo Island, Baja California, Mexico, 9 May 1921, J.C. Chamberlin leg., deposited in CAS 1442, examined). Platnick 2010. **New synonymy**



Figures 17–20.—Distribution maps. 17. *Olios bibranchiatus*; 18. *Olios peninsulae*; 19. *Olios naturalisticus*; 20. *Olios giganteus*.

Additional material examined.—USA: *Arizona*: 1 female, Los Cabezas (AMNH); 1 female and 1 juvenile, Colorado, Septinel Rock (39°32'N, 105°46'W) (AMNH); 1 male and 3 juveniles, Mariposa County, Cove Creek (36°33'N, 109°13'W) (CAS); 1 male, Comp Verde (34°33'N, 111°51'W) (AMNH); 1 female, Prescott (34°32'N, 112°28'W) (AMNH); 1 male, Gila County, 2 mi NE Payson (AMNH); 1 female, near Roosevelt Dam (33°41'N, 111°06'W) (AMNH); 1 male, Phoenix (33°26'N, 112°04'W) (AMNH); 1 female, 30 mi N Mesa on Verde (AMNH); 1 female, Mariposa County, Mesa (33°25'N, 111°49'W) (USNM); 2 males, 2 females and 1 juvenile, same locality (CAS); 1 female, Gila County, 13 miles W Miami (AMNH); 1 female, Sacaton (33°04'N, 111°44'W) (USNM); 1 male, Greenlee County, Clifton (33°03'N, 109°17'W) (AMNH); 1 female, Yuma County, Martinez Lake (32°58'N, 114°28'W) (AMNH); 1 female, Pima County, Base of Tortula Mountains (32°53'N, 109°49'W) (CAS); 2 females, Fort Yuma (32°44'N, 114°37'W) (USNM); 1 male and 1 female, Yuma County, Yuma (32°43'N, 114°37'W) (CAS); 2 males, same locality (AMNH); 1 female, Oracle (32°36'N, 110°46'W) (USNM); 1 male, Pima County, Tucson (32°13'N, 110°55'W) (CAS); 1 female, same locality (USNM); 1 female, same locality (AMNH); 1 male, Pima County, Avra Valley, 50 km WNW Tucson (USNM); 1 male, Tucson, Madera Canyon (AMNH); 1 female, Tucson, Sabino Canyon (AMNH); 1 female, Cochise County, Massai Point, Chiracahua Mountains (31°55'N, 109°22'W) (AMNH); 12 males, 3 females and 1 juvenile, Cochise County, Portal (31°54'N,

109°08'W) (AMNH); 2 males and 2 females, Portal, SW Research Station (AMNH); 1 male, Santa Rita Mountains, Madera Canyon (31°43'N, 110°52'W) (USNM); 2 males and 1 female, Big Rock Camp, Madera Canyon (AMNH); 1 male and 2 females, Pima County, Sopori School (31°39'N, 111°03'W) (AMNH). *California*: 1 female, Yolo County, Davis (38°32'N, 121°44'W) (CAS); 2 females, Solano County, Gates Canyon (38°18'N, 121°54'W) (CAS); 1 male and 1 female, Fresno County, Fresno (36°44'N, 119°46'W) (CAS); 1 female, same locality (AMNH); 10 males, 8 females and 5 juveniles, Tulare County, Ash Mountain, Kaweah Power Station, 40 mi NE Visalla (CAS); 1 female, Tulare County, Creighton Ranch Native Conservancy Preserve, near Tipton (36°03'N, 119°18'W) (CAS); 1 male, San Bernardino County, Mountain Home Creek (AMNH); 1 male, San Bernardino County, State Park, Mitchell Cavern (AMNH); 1 female, El Monte (34°04'N, 118°01'W) (USNM); 1 female, Riverside County, Pushwalla Palms (33°49'N, 116°16'W) (AMNH); 1 female, Riverside County, Palm Desert (33°43'N, 116°22'W) (AMNH); 1 female, Riverside County, Blythe (33°36'N, 114°35'W) (CAS); 1 female, Warner Springs (33°16'N, 116°38'W) (USNM); 1 female, San Diego (32°42'N, 117°09'W) (USNM); 1 female, Calexico, 1 mi W Calexico post office (32°40'N, 115°29'W) (CAS). *Utah*: 4 females, Saint George (37°06'N, 113°34'W) (AMNH); 4 males, 4 females and 5 juveniles, Zion National Park (37°N, 112°W) (AMNH). *Nevada*: 1 male, 1 female and 1 juvenile, Las Vegas (36°10'N, 115°08'W) (AMNH). *New Mexico*: 1 male, Los Alamos

County, Juniper (35°53'N, 106°18'W) (AMNH); 1 male, Los Alamos County, White Rock (35°49'N, 106°12'W) (AMNH); 2 females, Sandoval County, Placitas (35°18'N, 106°25'W) (AMNH); 1 male and 1 female, Bernalillo County (AMNH); 1 female, Punta del Agua (34°36'N, 106°16'W) (USNM); 1 female, Catron County (34°09'N, 108°25'W) (AMNH); 1 female, Socorro, 3 mi E Cienega Ranch (33°52'N, 107°05'W) (AMNH); 1 female, Sierra County, Natural Forest, 9 km W Hillsboro Highway 90 (CAS); 1 male, Hidalgo, 30 km N Lordsburg (AMNH). *Texas*: 1 female, Brownsville (25°54'N, 97°29'W) (AMNH). *MEXICO: Baja California*: 1 female, Isla Angel de la Guarda, South End (29°16'N, 113°24'W) (CAS); 1 male, 6 mi N Santiago, on Highway Sur (CAS). *Baja California Sur*: 1 female, Miraflores (23°21'N, 109°45'W) (CAS); 1 male, Cabo San Lucas (22°52'N, 109°54'W) (CAS); 1 female, 14 km E Mexico highway 9, on road to La Burrera (CAS); 1 female, Isla Espirito Santo, Playa La Bonanza (CAS). *Sonora*: 1 female, Desemboque (29°30'N, 112°22'W) (AMNH); 1 male, Guaymas, San Carlos Bay (27°59'N, 110°54'W) (AMNH); 1 female, Guaymas, Str. Albatross (USNM); 1 female, Agua Caliente (27°57'N, 110°13'W) (CAS).

Distribution.—Mainly Nearctic, occurring from southwestern United States to northern Mexico, with one single record from Sonora, central Mexico.

Diagnosis.—*Olios giganteus* Keyserling can be distinguished from the remaining Nearctic species by the elongate embolus, spiraled at least six times around small ring-like tegulum in the male palp (Figs. 13, 14) and by the female vulva with hyaline, spiraled copulation ducts and very long, slightly coiled fertilization ducts (Fig. 16).

Redescription.—*Male (USNM)*: Prosoma orange brown, slightly darker at clypeus and with reddish brown fovea. Chelicerae dark reddish brown. Legs and pedipalps orange brown. Sternum orange with brown margins. Labium and endites brownish orange, distally cream colored. Opisthosoma brownish gray. Dorsally with conspicuous heart mark with brown margins and mottled with brown spots. Total length 25.0. Prosoma: 11.4 long, 10.8 wide. Opisthosoma: 12.4 long, 9.2 wide. Chelicerae with two promarginal and four retro-marginal teeth, the most basal smaller. Inner margin, at base of fang, with 10 strong setae. Eye diameters: 0.74, 0.74, 0.56, 0.62; interdistances: 0.44, 0.16, 0.90, 0.94, 0.90, 0.64. Leg measurements (2143): I: 58.8 (16.4, 6.2, 15.6, 16.2, 4.4); II: 62.8 (17.8, 7.0, 16.8, 17.0, 4.2); III: 45.4 (14.4, 5.0, 12.6, 12.0, 3.4); IV: 52.8 (16.0, 5.4, 13.8, 14.2, 3.4). Trochanter notched. Metatarsi I–IV with dorsal trilobate membrane with median lobe as large as lateral projections. Spination: femora I–III: p1-1-1; d0-1-1; r1-1-1; femur IV: p1-1-1; d0-1-1; r0-0-1; tibiae I–IV: p1-0-1; d0-0-1; r1-0-1; v2-2-0; metatarsi I–IV: p1-1-0; r1-1-0; v2-2-0. Palp: tibia slightly longer than half cymbium length without VTA and one retrolateral spine (Figs. 13, 14); RTA simple, conical and elongate, slightly bent prolaterally (Fig. 13); cymbium with dorsal scopula (Fig. 14); tegulum small, ring-like; embolus very long and coiled with conductor-like projection arising subdistally (Figs. 13, 14).

Female (USNM): Coloration pattern as in male. Total length 31.6. Prosoma: 11.6 long, 11.2 wide. Opisthosoma: 20.0 long, 13.6 wide. Chelicerae as in male. Eye diameters: 0.46, 0.44, 0.32, 0.42; interdistances: 0.40, 0.24, 0.70, 0.84, 0.58, 0.46. Trochanter as in male. Trilobate membrane as in male.

Leg measurements (2143): I: 44.4 (13.2, 5.8, 11.0, 11.2, 3.2); II: 47.0 (14.2, 6.0, 12.0, 11.6, 3.2); III: 35.8 (11.4, 5.2, 8.4, 8.4, 2.4); IV: 39.6 (12.2, 5.0, 9.6, 9.8, 3.0). Leg spination as in male. Epigynum: lateral borders simple, with no projections; median septum slightly longer than wide with crinkled latero-posterior margins (Fig. 15). Vulva: copulation ducts very long, hyaline and coiled around fertilization ducts; glandular projection small and rounded; fertilization ducts very long and slender, slightly coiled (Fig. 16).

Variation.—Males ($n = 3$): total length 11.3–29.4; prosoma 6.0–12.2; femur I 8.8–17.2. Females ($n = 9$): total length 14.6–48.0; prosoma 5.8–16.0; femur I 7.4–18.6.

ACKNOWLEDGMENTS

I wish to thank Peter Jäger (Senckenberg Research Institute and Museum) and Ingi Agnarsson (University of Puerto Rico) for valuable comments on this manuscript. This study was supported by "Fundação de Amparo à Pesquisa do Estado de São Paulo" (FAPESP Grant no. 06/61167-6).

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